POLICY RESEARCH WORKING PAPER 2920

Social Polarization, Political Institutions, and Country Creditworthiness

Philip Keefer
Stephen Knack

The World Bank
Development Research Group
Investment Climate Team
and
Public Services Team
October 2002

POLICY RESEARCH WORKING PAPER 2920

Abstract

The literature argues that the presence of multiple veto players (government decisionmakers) with polarized interests increases the credibility of sovereign commitments, but reduces the ability of governments to adjust policies in the event of exogenous shocks that jeopardize their ability to honor their commitments. In the case of sovereign lending, if the first effect prevails, countries would be regarded as more creditworthy; if the second, less.

Keefer and Knack address two issues. First, using measures of country creditworthiness, they ask whether the net effect of multiple veto players is positive or negative. Second, though, the authors go beyond the existing literature to argue that the net effect of multiple veto players depends on the nature of social polarization in a country. In particular, they argue that political competition is fundamentally different in countries exhibiting ethnic polarization than in countries polarized according to income or wealth. The evidence supports the prediction that multiple veto players matter *more* when countries are more ethnically polarized, but *less* when income inequality is greater.

This paper—a joint product of the Investment Climate and Public Services Teams, Development Research Group—is part of a larger effort in the group to understand the interaction of social polarization and institutions. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, room MC3-300, telephone 202-473-7656, fax 202-522-1155, email address psintimaboagye@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at pkeefer@worldbank.org or sknack@worldbank.org. October 2002. (35 pages)

Social Polarization, Political Institutions, and Country Creditworthiness

Philip Keefer and Stephen Knack

World Bank, 1818 H St. NW, Washington DC 20433.
E-mail: pkeefer@worldbank.org, sknack@worldbank.org.

(Forthcoming in *Collective Choice: Essays in Honor of Mancur Olson*, Dennis Coates and Jac Heckelman (eds.), Springer-Verlag)

The authors are grateful to Christopher Clague and Dennis Coates for helpful comments and suggestions.

1. Introduction

A key issue in political economy and development is, under what conditions can governments commit themselves credibly to policy promises and respond flexibly to crisis? The answer to this question should depend on both institutional and societal characteristics, but the literature generally treats these factors separately. One literature has found that social polarization (in the form of income inequality, ethnic tensions or other differences) undermines both the credibility of government promises and the ability to respond to crisis. This research, however, abstracts from the role of political institutions and treats all forms of social polarization identically. Another literature finds that institutions, particularly the number of veto players in a country (or checks and balances), are key to credibility, but pays less attention to social characteristics such as polarization. In this paper we revisit these linkages.

We examine the creditworthiness of countries, a variable that is uniquely sensitive to both the credibility and the ability of governments to respond promptly to shocks, to illuminate three issues left open in the existing literature. First, it is difficult to draw conclusions from the literature on the net effect of characteristics of countries that affect both credibility and flexibility, but in opposite directions. This is particularly important for institutions such as checks and balances, which have been found to increase the first at the expense of the second. In a first approximation to this issue we find that checks and balances have a weak positive effect on creditworthiness – that is, the positive credibility effects outweigh the negative rigidity effects of multiple veto players.

Second, although many results on polarization depend on assumptions about institutions, and vice versa, there has been no systematic investigation of how the effects

of one depend on the other. This paper examines the effects of social polarization under different political conditions, including elections and checks and balances. We find that the effects of polarization depend strongly on the competitiveness of elections and the number of veto players.

Finally, Mancur Olson's work firmly establishes that the influence of special interests depends in part on their ability to overcome problems of collective action. The literature on polarization implicitly assumes that different forms of polarization (e.g., income, ethnic, or linguistic) have identical effects on society. We speculate, however, that the effects of ethnic and linguistic social groupings are likely to differ from those of income-based groupings. Olson (1982: ch. 6), for example, observed that successful distributional coalitions are often based on encouragement of ethnic prejudice and endogamy. In fact, we find that political institutions interact with these two dimensions of social polarization in opposite ways. Namely, an increase in income or wealth inequality makes it more likely that countries will default on their debt obligations, but this effect is *strongest* when democratic institutions such as checks and balances or competitive elections are most prevalent. However, although an increase in ethnic or linguistic polarization also increases the probability of default, this effect is *weakest* when democratic institutions are most prevalent.

2. The literature on polarization, institutions, credibility and delay

Creditworthiness is a function both of the credibility of governments – the likelihood that they will honor their lending agreements – and of their flexibility – the likelihood that, in response to negative fiscal shocks, they will adapt fiscal policy to new exigencies and continue servicing their debt. Thus, creditworthiness captures two

qualities of government that have been the focus of substantial research. One literature looks at the security of property and contractual rights, including the risk that government will expropriate illiquid assets. Svensson (1998) argues that a conflict of interest between two polarized parties that alternate in office will lead them to under-invest in a secure legal environment. Easterly and Levine (1997) conclude that ethnic polarization undermines economic growth, in part through adoption of less efficient economic policies which presumably contribute to reduced creditworthiness.

Keefer and Knack (2002) appeal to social choice reasoning to argue that increased polarization among decision makers can produce larger swings among different policies. Polarization has the effect of expanding the set of alternative policies that decision makers can propose to replace the current policy (e.g., the current policy to repay a loan that the government has received). Their argument shows immediately the effects of institutional assumptions. If multiple polarized groups vote, using majority rule, increased polarization increases policy instability and makes current government promises less credible. If multiple polarized groups each have veto power, then no change in policy can occur unless all agree, and increased polarization has no effect on policy instability.

North and Weingast (1989) specifically examine the effect of multiple veto players on the credibility of loan agreements. They show that the risk that the English Crown would not repay loans extended by Dutch lenders was significantly dampened by the presence of multiple veto players – the checks and balances introduced by a newly powerful parliament following the Glorious Revolution. They do not ask what happens when polarization of preferences increases. Keefer and Stasavage (2000) do consider the

interaction of polarization and the number of veto players, but in a specific application, the credibility of monetary policy.

Another literature has analyzed why governments sometimes respond with significant delay to crisis. Alesina and Drazen (1991) assume that polarized decision makers also exercise veto power over government decision making. They find that polarized interests who are each unsure about the costs delay imposes on the others have an incentive to delay reform even when doing so leaves everyone worse off. Rodrik (1999) argues that countries recover faster from inflation shocks if they have "consensus-building" institutions. However, rather than model such institutions politically – the extent of elections, checks and balances, etc. – he uses the security of property rights and similar variables to proxy for consensus-building institutions.

Creditworthiness is also affected by the sheer volume of country borrowing. Holding constant moral hazard problems and the likely response of countries to fiscal crisis, countries that have a higher demand for loans, and therefore more debt, are likely to be less creditworthy. Alesina and Gatti (1995) and Berg and Sachs (1988) both link polarization to the magnitude of government spending and, by implication, to indebtedness. Alesina and Gatti (1995) assume, like Svensson (1998), that there are no checks and balances, but rather two political parties that alternate in power. They show that if these parties have polarized preferences over government spending, they are likely to raise spending (or incur debts) in order to reduce the fiscal discretion of their successors.[1] Berg and Sachs (1988), on the other hand, argue that in more unequal

[1] McGuire and Olson (1996) show formally that the mere presence of instability, independent of preference differences over government spending, encourages governments to take actions in the present with high future costs.

societies, in which the rich control both economic and political life, pressures for redistribution are likely to lead to higher borrowing and therefore higher interest rates.[2]

These different contributions imply that polarization should have little or no effect on government response to crisis if polarized groups are not also veto players (Svensson 1998, Keefer and Knack 2002, Alesina and Drazen 1991) – in fact, Alesina and Drazen specifically point to cases where the unified control of government by a single partisan interest led to a quick resolution of crisis. Assuming polarization, the literature suggests that multiple veto players will increase credibility (North and Weingast 1989, Keefer and Stasavage 2000), but provides arguments both in favor and against the proposition that they will reduce flexibility. While multiple veto players are a necessary condition for a delayed response to crisis in Alesina and Drazen (1991), multiple veto players may be precisely the sort of "consensus-building" institution that yields the faster response to crisis in polarized countries that Rodrik (1999) predicts. In any case, the literature provides no prediction as to which effect -- credibility or delay -- will dominate. Finally, all of these studies treat polarized groups as being identical in their internal characteristics. The next section asks how predictions about the effects of social polarization should be modified if the internal characteristics of the polarized groups are heterogeneous.

---

[2] In their argument, it is not clear why the rich, politically powerful by assumption, would accede to more redistribution in the first place, and why redistributive pressures, *per se*, would lead to larger debt. However, in a recent paper, Acemoglu and Robinson (2001) argue that the threat of insurrection leads the rich elite to democratize (expand the franchise), leading to more political pressures to redistribute. In more unequal countries, larger amounts of redistribution are triggered by democratization, giving elites a larger incentive to stage counter-coups. Evidence in support of the theory is mixed: they point effectively to a number of country case studies, but cross-country evidence reveals little association between either redistribution and inequality or between inequality and political violence.

3. The effects of polarization when polarized groups are heterogeneous

A substantial literature points to the importance throughout history and across many cultures of intra-ethnic social and economic exchange, ranging from marriage to trade. Intra-ethnic exchange may be driven by cultural mores and the prejudices of or about other ethnic groups, but it is also catalyzed by the greater possibilities of credible contracting within an ethnic group (Landa 1981, Greif 1989). Not all ethnic groups in all places and times exhibit dense patterns of social and economic exchange. The point is only that they are more frequent features of ethnic or linguistic groups than of income groups (although social exchange is often restricted across classes).

A dense pattern of exchange is likely to support the credibility of intra-group promises. For example, as Greif (1989) demonstrates, the threat of future exclusion from these exchanges is a powerful device for the deterrence of reneging. Ethnic groups, relative to income-based groups, are therefore more likely to overcome obstacles to collective action since, as Olson (1965) first pointed out, groups that cannot enforce contribution commitments by all members to the cause of the group are unlikely to be effective special interests. To the extent that intra-ethnic group ties are stronger than intra-income group ties, we would therefore expect ethnolinguistic groups to be more successful "special interests". Therefore, we would expect an increase in ethnolinguistic polarization to most reduce creditworthiness in those institutional environments that are most permeable to special interests rather than the interests of the "median voter": where elections are non-competitive, and where checks and balances are absent that might otherwise serve to pit competing special interests against each other.

If intra-group promises are significantly more credible than inter-group promises across ethnic groups, but not across income groups, then there are also important implications for the strategies of politicians. In particular, promises made to a particular ethnic group by competing candidates from that ethnic group are more credible than promises made by those candidates to other ethnic groups. The consequences of reneging on those promises include restricted access to the wide range of interactions that characterize membership in the ethnic group. Within income groups, in contrast, this threat is less severe and the credibility of promises of politicians from any one income group is likely to be similar across interest groups.

Where candidate promises are credible, and there are no information or other problems, candidates converge on the median voter's preferred outcome. Although the median voter has no particular reason to prefer high levels of spending that fund current consumption at the expense of future consumption, this restraint disappears if candidate promises are only credible to part of the electorate. In that case, Keefer (2002) argues that candidates will tilt their promises in favor of the group to which credible promises can be made, at the expense of the remainder of society. Since all of society bears the costs of low creditworthiness, but the ethnic group gets all of the benefits of increased spending, the median ethnic group "voter" will prefer high spending, and creditworthiness drops. This effect should be greatest, however, when:

- only one ethnic group is represented in government – when there are no checks and balances;
- voters from other ethnic groups have the least influence on selecting government officials – reducing the penalty that members of non-favored ethnic groups can

impose on leaders from other ethnic groups who drive down country creditworthiness.

Perhaps most importantly, when institutions themselves provide a basis for credible promises by politicians across all ethnic groups, the incentive for differential treatment of ethnic groups dissipates. This is most likely to happen when institutions such as multiple checks and balances are in place, which increase the credibility of all government decisions, reducing the commitment advantage that some government decision makers or candidates have because of personal ties to some voters or groups of voters.

When politicians emerge from different income groups, a different dynamic is at work. In this case, the ability of politicians to make credible promises to specific constituencies, such as the poor or the rich, depends much more on the institutional environment. When it does not support credible promises, politicians gain nothing by pitting the rich against the poor, since the poor do not believe the politicians will help them, once in office. However, as elections grow more competitive and checks and balances provide greater assurances about the credibility of government decisions, the incentives to seek out and develop such constituencies grows. It is in these circumstances, then, that we expect income and wealth-based polarization to matter most.[3]

There is substantial, though non-systematic evidence that parties organized around "class" or income are not common in developing countries. Haggard and Kaufman (1992), in an examination of many episodes of high inflation in a number of countries, found very little evidence that parties and political conflict were organized by income groups. Inflation in most cases was driven by governments that spent excessively

[3] Similarly, income polarization slows growth most in democracies in the model of Persson and Tabellini (1994), but for a different reason: in democracies (but not in non-democracies) policymakers act to satisfy

on infrastructure and development; independent groups representing the interests of the poor, whether political parties or not, were weak prior to the shifts in spending strategy. Only in a few of the countries that they studied, Argentina, Chile and Brazil, were there well-organized "worker" parties.

4. Summarizing the testable predictions

Taken altogether, the foregoing arguments yield a dense but clear-cut set of predictions.

- Given multiple veto players, social polarization should reduce the ability of countries to respond to shocks (Alesina and Drazen), and therefore reduce creditworthiness.
- Provided there is some polarization of veto players, checks and balances should increase the credibility of agreements to repay loans and therefore increase creditworthiness (from North and Weingast).
- The effects of income-based polarization should be *greater* and the effects of ethno-linguistic polarization *smaller* when political promises are more credible – when there are more checks and balances, and more competitive elections.

Some of these hypotheses have already received empirical attention. With respect to veto player type arguments, most evidence has focused on political "fragmentation", defined in various ways. Haggard and Kaufman (1992) and Veiga (2000) present evidence that countries with more fragmented political systems are less likely to embrace stabilization programs after plunging into a period of high inflation. Haggard and Kaufman, in their case studies, find however that fragmentation affects country responses to hyperinflation, but not to other high but non-hyperinflationary episodes. These experimental settings

---

the median-income voter.

allow the authors to evaluate the combined effect of polarization and checks and balances on responsiveness to crises, but do not allow them to disentangle the two effects nor to examine their influence on government credibility.

Haggard and Kaufmann do not directly take the number of veto players in a government into account in their analysis, although they do consider polarization, elections and the policy orientation of the ruling government. Their "polarization" variable comes closest to the hypotheses above, but does not take into account the number of veto players. On a three point scale, a one is assigned to countries with exclusive one party systems; a two to systems with inclusive or corporatist one-party systems or two-party systems with broad catch-all parties; and a three to polarized or fragmented party systems. They do not consider whether or not these parties control veto gates.

Alesina and Drazen or Rodrik type arguments are more plausible when applied to broad social polarization than to the polarization of elites. Alesina and Drazen rely on assumptions about information asymmetry that are easier to justify in reference to broad groups; similarly, Rodrik relies on assumptions about the enforceability of inter-group agreements that are less plausible when the agreements are between different segments of the elite. Their arguments are best tested with information both about political or partisan polarization (the polarization of political parties), and about social polarization. Haggard and Kaufman seem to rate as "most" polarized those countries in which both parties and society at large are polarized, where social polarization seems to be captured by the existence of organized groups in society that seem to be in conflict with each other. In this sense, their definition of polarization is partially driven by the contentiousness of the

policy debate, so that causality is clouded. In the empirical work below, we use only a priori definitions of polarization (ethno-linguistic or income cleavages), as well as taking explicit account of the number of institutional veto players.

Veiga pays more attention to the number of veto players and their partisan affiliations, encapsulated in his "fragmentation" variable, also trichotomous, like Haggard and Kaufman's "polarization" measure. Fragmentation is "one" if there are no parties or an exclusive one party system; a two if there is a one-party majority parliamentary government, or a presidential government with one-party control of the legislature and presidency; and "greater than two" for other systems. While useful, this variable groups quite disparate countries into similar categories. For example, legislatures in presidential systems may act with greater independence, even when the president's party controls them, than parliaments with a one party majority. This is the case if one compares the US with Great Britain, for example. The category "greater than two" embraces a large number of disparate systems, ranging from divided presidential government to highly fractionalized government coalitions in parliamentary systems. Again, we might expect differences among these. The empirical work below uses a more fine-grained measure of veto players, which also takes into account partisan control of the veto gates; we also take social polarization explicitly into account.

Berg and Sachs (1988), Rodrik (1999) and Quinn and Woolley (2001) are all concerned with the effect of social polarization, and the latter two papers with the interactive effects of institutions and social polarization. Berg and Sachs (1988) look at 35 countries for which there was information on sovereign debt discount rates. Unlike later researchers, their focus is not institutional and they do not consider the differential

effects of inequality under different institutional arrangements. They find that countries with greater income inequality have a higher likelihood of rescheduling debt, and a higher rate of discount on the debt. We are able to replicate their results, but for a larger sample of countries, since our creditworthiness ratings are more widely available. Apart from considering the institutional dimension, we also use a larger set of polarization variables, representing not only inequality in income but landholding and also ethnic fractionalization.

Rodrik (1999) and Quinn and Woolley (2001) are concerned with broader economic outcomes, growth before and after the oil crisis in the case of Rodrik and the volatility of economic growth in the case of Quinn and Woolley (2001). Their work examines indirectly the hypotheses that structure this paper. Rodrik (1999) finds that the impact of trade shocks on economic performance is worse in the presence of ethnic fractionalization or income inequality and in the absence of democracy. This supports his contention that social conflict constitutes a barrier to adapting policy to external shocks unless there are institutions that moderate conflict and make agreements between contending groups more credible. This result potentially contradicts the conclusions of Alesina and Drazen, however, since democracies are characterized in part by their multiplicity of veto players, which (given social polarization) should delay rather than accelerate a country's response to growth. Quinn and Woolley (2001) find different results, however. Democracy (captured, as in Rodrik 1999, by Freedom House indices of political freedoms and civil liberties) makes economic growth less volatile. Ethnic fractionalization has neither a direct effect on volatility, nor does it influence the effect of democracy. Their results thus fail to support either model of bargaining, reform and

delay. Unlike Rodrik, they permit democracy and ethnic fractionalization to enter independently, as well as in a multiplicative term, making theirs a more reliable test.

Persson and Tabellini (1994) examine the effect of income inequality on growth, conditional on regime type. Building on median voter models of income taxation and redistribution (e.g., Meltzer and Richard 1981), they argue that inequality should slow growth more in countries where median voters are more decisive, i.e. in democracies. Persson and Tabellini present cross-country evidence finding that a significant and negative relationship between inequality and growth exists only in their sub-sample of democracies, and not in the non-democracies. Knack and Keefer (1997) show, however, that these results are an artifact of measurement error in the inequality data and regime type classifications used by Persson and Tabellini. Using more standard data sources on inequality and regime type, the link between inequality and growth is equally strong in democracies and non-democracies. Creditworthiness is more directly linked than economic growth to the decisions of government. Its use in the work below therefore provides a more direct test of the different hypotheses surrounding the influence of institutions and polarization on government credibility and response to crisis. In addition, we use institutional variables that allow a more fine-grained examination of how institutions mediate social polarization and growth, and we address a broader range of institutional conditions that might influence creditworthiness.

5. Data

Our measure of the creditworthiness of nations is based on a survey of leading international banks conducted every six months by Institutional Investor. Bankers are not permitted to rate their home countries. The sample ranges from 75 to 100 banks, with

responses weighted to give more importance to the views of banks with greater worldwide exposure and more sophisticated country-analysis systems. It is scored on a 0-100 basis, with 0 representing the greatest chance of defaulting on the sovereign debt, and 100 assigned to countries with the lowest risk of default. The mean value among the 106 countries included in our empirical analyses is 38.8, with a standard deviation of 25.7. Ratings exceed 60 for most of the OECD countries, with Japan, Switzerland, Germany and the US the only nations above 90. The bottom of the distribution is dominated by conflict-ridden African and Latin America nations such as Sudan, Sierra Leone, Liberia, Zaire, Haiti and Nicaragua, all scoring below 10. (Data Appendix II lists ratings from lowest to highest for all countries included in empirical tests.)

The accuracy of this creditworthiness index is supported by two statistical analyses. A study of 78 Euromarket loans for 34 countries found that the interest rate spread was strongly and inversely correlated with the creditworthiness ratings, controlling for maturity and length of the grace period (Feder and Ross 1982). A GAO study (1994) found that the creditworthiness index was similarly strongly related to the discount on 38 sovereign debt instruments, owed by 21 countries, traded on secondary markets.

In contrast to the limited number of countries for which data are available on interest rate spreads, or on discounts on debt traded in secondary markets, the Institutional Investor index is available for about 130 countries. Use of this subjective index is preferable to objective indicators on other grounds. Interest spreads are only a rough reflection of risk, as low interest rate spreads may be offset by high fees or special tax concessions, which are difficult to measure. Data are available for a large sample of

countries on the debt-service ratio (interest plus repayment obligations relative to export revenue), or the stock of external debt relative to GDP. However, the debt-service ratio is a misleading gauge of creditworthiness, and is not a significant predictor of debt rescheduling (Rahnama-Moghadam and Samavati 1991). Using the stock of debt as our dependent variable would require attempting to control for various factors that might affect a country's ability to repay a large debt. The subjective index we use instead implicitly adjusts for these factors already--and probably far more effectively than we could using statistical controls.

We use the mean value of the creditworthiness measure over the 1986-95 period. Using data over the ten-year period ensures that values are not unduly influenced by business cycle effects or by short-term fluctuations in the prices of petroleum or other key imported or exported commodities. We control for the log of initial (1985) per capita income and for growth in per capita income from 1980-85, just prior to the period of analysis, as higher values of these may improve the ability of governments to finance their debts. Since larger economies tend to be more diverse, and less subject to terms of trade or other shocks that can suddenly worsen a government's fiscal position, we also control for the ratio of a country's aggregate GDP to US GDP. Finally, we control for shifts in the net barter terms of trade, which represent exogenous changes in a country's ability to pay back debt denominated in foreign currencies. The terms of trade shift is constructed as the ratio of the 1986-95 average value, to the 1980-85 average value, of the ratio of the export price index to the corresponding import price index. Improvements in the terms of trade over the period for which our dependent variable is measured,

relative to the preceding period, are reflected by values exceeding unity.[4] Since it is precisely through their policy decisions about fiscal and monetary policy that countries influence their creditworthiness, we do not attempt to control for endogenous variables such as inflation or deficit spending.

We assess the impact of three kinds of polarization and three variables that describe the political environment. With respect to polarization, we use a measure of income inequality, inequality in land ownership, and ethno-linguistic polarization. Although these measures have been used in other contexts in the literature, only Keefer and Knack (2002) justify their usage in view of the theoretical literature on polarization. We briefly review that discussion here, especially to explain our use of the ethnic fractionalization data.

Esteban and Ray (1994: p. 824) point out that commonly used measures of polarization may not, in fact, capture polarization in society – they may do just the opposite. They argue that groups in society are polarized with respect to any set of attributes when they exhibit the following three characteristics: the members of each group are homogeneous with respect to the set of attributes; different groups are heterogeneous with respect to these attributes; and the groups are relatively uniform in size. Esteban and Ray conclude that polarization is greatest when society is divided into two similarly sized groups, each internally homogeneous but significantly different from the others on all possible attributes.

As they observe, most measures of income inequality and ethnic fractionalization do not correspond to these definitions of polarization. Theoretically appropriate measures

[4] In most cases, these shifts are unlikely to be unanticipated. To the extent they are anticipated, the relationship of shifts to creditworthiness may weaken as countries expecting improvements (deteriorations)

of income-based polarization should be sensitive to the degree of clustering of the population, which inequality measures derived from the Lorenz curve are not. Similarly, societies that are completely ethnically fractionalized could be regarded as completely non-polarized by their definition.

In Keefer and Knack (2002), we justify the use of Gini measures of inequality by showing that theoretical objections may not be empirically important. Using data available from a few countries that includes the percentage of the population at each income level, one could construct a theoretically robust measure of income polarization that turns out to be strongly correlated with the Gini coefficient calculated from the same data.

It turns out to be a simpler matter to transform measures of ethno-linguistic fractionalization into a theoretically adequate measure of ethnic polarization. We use Sullivan's (1991) measure of the fraction of the population belonging to the largest ethnic, linguistic or religious group (whichever cleavage is judged by Sullivan to be most salient in a society).[5] As Keefer and Knack (2002) argue, following Horowitz (1985), polarization ought to be lowest when this fraction is either smallest (reflecting many very small groups) or highest (reflecting only one group). To capture this non-linearity, we include a quadratic ethnic fractionalization term in the first sets of regressions below.

The quality of income inequality data is a second concern. As in Keefer and Knack (2002), we use the income inequality data compiled by Deininger and Squire

---

may borrow more (less) in the current period.

[5] An index of "ethno-linguistic fractionalization" reported in Taylor and Hudson (1983), has been widely used in the economics and political science literature. The Sullivan measure has substantially greater country coverage, as the fractionalization index is not reported for many African and other countries which were not yet independent when the variable was constructed in about 1960. The homogeneity variable and the fractionalization index are correlated at -.60.

(1996). This dataset has greater coverage over time and across countries than any previous compilation. In addition, and more importantly, they identify a "high quality" subset of observations. Deininger and Squire conclude that many observations in previous compilations fail to meet the minimum standards of quality required for inclusion in their dataset. Because our empirical tests examine inequality's impact on creditworthiness over the 1986-95 period, we chose inequality observations as close to 1985 as possible.[6] The mean year for observations is 1985, with a standard deviation of 4.8 years.

Societies can also be polarized according to holdings of assets. Land inequality is the only measure of asset inequality with broad country coverage. Gini coefficients for land inequality circa 1960 and 1970 are available from Taylor and Jodice (1983); Muller and Seligson (1987) include some additional values for circa 1970. Jazairy et al. (1992) report observations for more recent years for many countries. All of the land inequality observations are based on official agricultural censuses undertaken by the UN Food and Agriculture Organization, although they have not been subjected to the level of scrutiny Deininger and Squire (1996) have applied to income inequality data.

Finally, we use two political variables from the Database of Political Institutions (Beck et al. 2001). The number of veto players is captured by the variable *Checks*, which counts as veto players the president and each legislative chamber in a presidential system. The variable is incremented by one unless the president's party has a majority in the lower house *and* there is a closed list system (by which legislative candidates must be

---

[6] Where no measure was available for 1985, a decision rule was consistently applied for selecting between available observations. This rule treated the possibility of reverse causation introduced from selecting later years as a more serious problem than increased measurement error resulting from the selection of earlier years. Specifically, the rule was to choose the year satisfying the function: min [2(year - 1985); 1985 -

selected by party leaders) that weakens legislator autonomy from the president. In parliamentary systems, the prime minister and each coalition party that is not his or her own count as veto players. If there is no closed list electoral rule, the prime minister's party counts as a veto player, and *Checks* is incremented by one. *Checks* is set to one automatically in any country in which presidential elections are not competitive, on the presumption that formal institutional checks and balances are unlikely to operate in practice. We use the mean value for each country over the 1986-95 period.

Our second political variable, the competitiveness of executive elections, is based on another variable from the Database on Political Institutions which is coded from one to seven. Where there is no functioning executive, countries are coded 1. Where executives are unelected, they are coded 2. Where elections are not open to multiple candidates or parties, countries are coded in the 3-5 range (See Data Appendix III for details.) Countries in which multiple parties can and do compete and present candidates, but the winning candidate receives more than 75 percent of the vote are coded 6; a 7 is assigned if the winner receives less than 75 percent of the vote.

We create a dichotomous variable from this scale, with countries in which multiple candidates from multiple parties compete classified as having competitive elections and all other countries classified as non-competitive. Specifically, countries assigned to either the 6 or 7 category for the majority of years during the 1986-95 period were classified as competitive and all others as non-competitive.

6. Results

The regressions in Table 1 address whether social polarization reduces creditworthiness, abstracting from political institutions. The first three regressions

---

year]. Ties were resolved in favor of selecting the earlier year (for example, 1983 over 1986).

examine income polarization (income inequality). All show that income inequality increases the likelihood of default on debt. In the first equation, the coefficient on income inequality suggests that each two point increase in Gini is associated with a 1.2 point decline in the creditworthiness index. Each standard deviation increase in income inequality (i.e. an increase of 9.5 in Gini) reduces creditworthiness by more than one-fifth of a standard deviation (*beta* = .2), or 5 points. This effect is comparable to that of income growth, and exceeds the effects of higher aggregate income (*beta* = .12) or improvements in the terms of trade (*beta* = .15).[7]

Equation 2 differs from equation 1 by weighting observations by aggregate GDP, instead of weighting all observations equally. The relationship between inequality and creditworthiness is even stronger in this test than in equation 1, indicating that the strong effect of inequality is not driven merely by a few very small countries.[8] Equation 3 differs from equation 1 by using median regression analysis rather than OLS. In median regression (see Gould and Rogers 1994), observations lying far from the regression line are weighted less heavily than in OLS. The inequality coefficient is nearly identical to that in equation 1, indicating that the relationship is not produced by a small number of extreme cases.

Equations 4-7 report results using the alternative measures of polarization or specifications. The results for land inequality, in equation 4, exhibit the right sign (more

---

[7] In all regressions, the four control variables are positively and significantly related to creditworthiness. Income per capita is the strongest of the four: each standard deviation increase is associated with an increase of more than three-fifths of a standard deviation in creditworthiness in equation 1. Each 4 percentage-point increase in aggregate GDP (as a percentage of U.S. GDP) is associated with a 1-point increase in the creditworthiness index. Each 1 percentage-point increase in annual per capita income growth is associated with a 2-point increase in the index. Each 7 percentage-point improvement in the terms of trade (e.g. from 1 to 1.07) is associated with a rise of 1.4 points in creditworthiness.

land inequality undermines creditworthiness), but the coefficient is not significant at conventional levels. However, controlling for income inequality, in equation 5, both land and income inequality are shown to have a significant negative effect on creditworthiness. Each one-unit increase in the Gini for land inequality reduces creditworthiness by one-fifth of one point.

Ethnic homogeneity is entered in equation 6 in quadratic form, to better capture the theoretical relationship between ethnic homogeneity and ethnic polarization, as discussed above. Consistent with that discussion, both ethnic homogeneity and its square are significant at the .01 level. Creditworthiness declines as the percent belonging to the largest group increases, up to about 70 percent, and increases thereafter.

Equation 7 examines all of the polarization measures jointly.[9] Income and land inequality both remain strongly significant. Coefficients on homogeneity and its square decline somewhat relative to equation 5, and are not statistically significant in this smaller sample.

Tables 2 and 3 add the two political variables, and their interactions with each of the three polarization variables. To avoid interacting a variable with another that is already interacted with itself, we replace the quadratic form of ethnic homogeneity in these tables with a simple transformation: the deviation in absolute value from 70 percent. This value is chosen based on the results of equation 5 in Table 1, which indicate

---

[8] The aggregate GDP of the U.S. is 20,000 times that of Seychelles. The logic for treating each country equally is that they each represent a single natural experiment in economic policy making.

[9] Low correlations among income inequality, land inequality, and ethnic homogeneity suggest that societies are in general polarized in different ways across different dimensions. Income and land inequality are correlated at only .09 among the 64 nations in our sample with data available on both variables. Ethnic homogeneity is correlated with income and land inequality, respectively, at only -.25 (N = 75) and .03 (N = 84). Quadratic associations between inequality and homogeneity are even weaker: homogeneity and homogeneity squared explain only 7% of the variation in income inequality, and 0.1% of the variation in

that creditworthiness is minimized when 70 percent of the population belongs to one ethnic or linguistic group.[10] Because larger deviations from 70% are associated with higher creditworthiness, we will call this variable "ethnic harmony."

Table 2 tests the hypotheses that social polarization reduces creditworthiness, that checks and balances increases it, and that the effects of each are dependent upon the other. The coefficient estimates on *Checks* (the number of veto players) indicate that the number of veto players has a positive effect on creditworthiness. In the larger samples (equations 3 and 5), this effect is marginally significant, with each extra veto player associated with an improvement of about 2 points in the 100-point creditworthiness index. That is, the credibility effects of checks and balances appear to outweigh the responsiveness effects in the assessments of creditworthiness.

The effects of social polarization depend significantly on the number of veto players. Equation 2 of Table 2 shows that the negative effects of income inequality are significantly greater when there are more checks and balances.[11] The coefficient of the interaction between land inequality and *Checks* is also negative in equation 4, but not significant. Equation 6, which looks at ethnic polarization and its interaction with *Checks*, demonstrates the contrary result: ethnic harmony improves creditworthiness most when there are fewer veto players, and this beneficial effect *diminishes* significantly as the number of veto players increases. This is the first piece of evidence for the final hypothesis, that the nature of polarized groups influences their effects on policy.

---

land inequality.

[10] This value is also very close to the sample mean of 68.5%.

[11] The interaction terms in equations 2 and 4 are constructed as the deviation of the inequality variables from their sample means, multiplied by the deviation of checks from its mean value of 3.

Table 3 pursues this theme, adding the competitiveness of executive elections and interacting it with the social polarization variables. Electoral competitiveness is negatively but (generally) not significantly associated with creditworthiness. We would expect that more organized groups would have a greater effect on policy when voters are least "empowered", as when elections are non-competitive. If ethnic groups are more organized than income groups, we would expect the effects of ethnic harmony on creditworthiness to be greatest when elections are least competitive. In contrast, the distribution of income should affect creditworthiness more when elections are more competitive. Equations 2, 4 and 6 provide evidence that this is the case. In equations 2 and 4, the interaction of land or income inequality with electoral competitiveness is negative and significant, indicating that inequality has a stronger negative effect on creditworthiness when elections are more competitive.[12] However, the negative coefficient on the ethnic harmony interaction in equation 6 signifies the opposite: more ethnic harmony (larger deviations from 70% belonging to the largest group) is less beneficial to creditworthiness – or, ethnic strife is less damaging -- when elections are more competitive. This interaction term is significant only at the .12 level, however, for a two-tailed test.

Table 4 provides a summary of the effect of changes in the social polarization variables, conditional on different levels of *Checks* and electoral competitiveness. The pattern of asterisks underlines the stark differences between ethnic polarization and income inequality. The impact of ethnic polarization is greatest (i.e. ethnic harmony is most beneficial, or ethnic divisions most damaging) at low levels of both *Checks* and

[12] The interaction terms in equations 2 and 4 are constructed as the deviation of inequality from their sample means, multiplied by the electoral competitiveness dummy.

electoral competitiveness. It is not significant where elections are competitive or where there are four or more checks. In contrast, inequality is most damaging at high levels of both *Checks* and electoral competitiveness. Both land and income inequality are significant only where elections are competitive. Income inequality is significant except where there are no checks on the executive (i.e. *Checks* equals one). Land inequality is significant only where checks is less than three.

7. Summary

Our finding that social polarization is associated with reduced creditworthiness is consistent with the Alesina and Drazen (1991) model of delayed stabilizations. Our results, using a different dependent variable, corroborate those of Berg and Sachs (1988), who found inequality was associated with a greater likelihood of defaulting on debt, and a higher discount on debt in secondary markets. We find that on average, more veto players are associated with improved creditworthiness, consistent with the analysis by North and Weingast (1992) of English sovereign borrowing in the 17^{th} and 18^{th} centuries. This result is somewhat contradictory to those of Veiga (2000) and Haggard and Kaufman (1992), who find that fragmented political systems slow responses to inflation crises; however, our dependent variable reflects both credibility and responsiveness to crisis. Our results also show that the effects of social polarization and institutions are highly inter-dependent, providing a unifying basis for assessing the implications of these different strands of the literature.

Finally, results of our interaction tests are consistent with our claim that Olson's insights regarding the importance of the internal organization of groups are important to consider in evaluating the effects of social polarization. Where elections are not

competitive and there are few checks on executive power, a candidate's promises will be less credible to members of other ethnic groups, and the candidate will have an incentive to promise higher spending that benefits his or her own group. Accordingly, ethnic divisions undermine (or, ethnic harmony enhances) creditworthiness more where checks are few and elections are less competitive. In contrast to the high social and economic costs of reneging on promises to one's own ethnic group, the costs to reneging on promises made to income groups appear to be relatively low. Those promises will be more credible when competitive elections and checks and balances increase the predictability of government decision making. Accordingly, inequality undermines creditworthiness more where checks are more prevalent and elections are competitive.

Table 1

Polarization and Creditworthiness

Equation	1	2	3	4	5	6	7
Method	OLS	WLS	Median	OLS	OLS	OLS	OLS
Constant	-81.25 (14.20)	-88.36 (11.39)	-90.18 (21.91)	-119.44 (12.42)	-82.82 (13.31)	-107.09 (11.86)	-82.55 (14.64)
GDP per capita 1985	16.52** (1.43)	19.00** (1.00)	17.30** (2.12)	19.18** (1.36)	18.17** (1.43)	19.22** (1.36)	19.62** (1.47)
Growth 1980-85	2.04** (0.64)	1.47# (0.75)	2.08** (0.72)	1.48** (0.52)	1.56** (0.57)	1.77** (0.46)	1.83** (0.60)
Aggregate GDP 1985	0.24** (0.09)	0.09** (0.02)	0.26# (0.15)	0.29* (0.12)	0.26** (0.09)	0.29* (0.12)	0.24** (0.09)
Terms of trade shift	13.68** (4.40)	17.73** (3.78)	15.91** (6.21)	12.86* (5.90)	11.06* (4.90)	15.12** (5.51)	14.34* (5.63)
Gini: income Inequality	-0.60** (0.16)	-0.94** (0.16)	-0.59** (0.21)		-0.54** (0.16)		-0.49** (0.16
Gini: land inequality				-0.12 (0.08)	-0.20** (0.07)		-0.18* (0.07)
Ethnic homogeneity						-0.70** (0.23)	-0.52 (0.33)
Ethnic homog.^{2}						.005** (.002)	.003 (.002)
N	76	76	76	84	64	105	64
R^2/Pseudo R^2	.83	.94	.60	.80	.87	.79	.87
S.E. of est.	11.0	6.3	--	12.3	10.2	12.0	10.0
Mean, D.V.	42.4	72.2	42.4	41.2	44.0	39.0	44.0

Dependent variable = International Investor Index of Creditworthiness, averaged over 1986-95. Inequality measures are circa 1985. Standard errors are calculated using White's (1980) heteroskedastic-consistent variance-covariance matrix. A #, * or ** indicates significance at .10, .05, or .01 level respectively for two-tailed tests. Note R^2 does not have its usual interpretation in WLS (equation 2).

Table 2

Checks and Balances, Polarization, and Creditworthiness

Equation	1	2	3	4	5	6
Constant	-76.21	-69.09	-107.39	-103.60	-120.00	-125.99
	(15.35)	(15.31)	(13.25)	(13.00)	(11.21)	(11.48)
GDP per capita 1985	15.21**	14.71**	17.31**	17.02**	17.19**	18.07**
	(1.80)	(1.77)	(1.70)	(1.63)	(1.47)	(1.50)
Growth 1980-85	2.11**	2.15**	1.31*	1.27*	1.70**	1.70**
	(0.66)	(0.63)	(0.53)	(0.52)	(0.46)	(0.45)
Aggregate GDP 1985	0.23**	0.24**	0.28*	0.31*	0.29**	0.27*
	(0.08)	(0.08)	(0.11)	(0.12)	(0.11)	(0.12)
Terms of trade shift	12.65**	11.42*	9.88#	9.60#	12.23**	12.83**
	(4.45)	(4.55)	(5.74)	(5.59)	(4.72)	(4.61)
Gini: income Inequality	-0.55**	-0.58**				
	(0.17)	(0.17)				
Gini: land inequality			-0.13	-0.15#		
			(0.08)	(0.08)		
Ethnic harmony					0.24**	0.18*
					(0.08)	(0.09)
Checks (# of veto players)	1.47	0.96	2.02#	1.98#	1.64#	1.31
	(1.15)	(1.40)	(1.10)	(1.09)	(0.92)	(0.92)
Inequality* *Checks*		-0.18#		-0.06		
		(0.11)		(0.06)		
Ethnic harmony **Checks*						-0.12*
						(0.06)
N	76	76	84	84	105	105
R^2	.84	.85	.81	.81	.80	.81
S.E. of est.	10.9	10.7	12.2	12.1	11.9	11.7
Mean, D.V.	42.4	42.4	41.2	41.2	39.0	39.0

Dependent variable = International Investor Index of Creditworthiness, averaged over 1986-95. Inequality measures are circa 1985. Standard errors are calculated using White's (1980) heteroskedastic-consistent variance-covariance matrix. A #, * or ** indicates significance at .10, .05, or .01 level respectively for two-tailed tests. Inequality**Checks* = (deviation of Gini from sample mean)*(deviation of *Checks* from 3). Ethnic harmony**Checks* = (deviation of homogeneity from 70%, in absolute value)*(deviation of *Checks* from 3).

Table 3

Electoral Competitiveness, Polarization, and Creditworthiness

Equation	1	2	3	4	5	6
Constant	-99.47 (12.55)	-103.17 (15.04)	-128.90 (13.11)	-135.58 (14.48)	-136.73 (11.31)	-142.76 (11.45)
GDP per capita 1985	18.21** (1.60)	17.33** (1.66)	20.28** (1.54)	19.59** (1.52)	19.88** (1.46)	20.22** (1.42)
Growth 1980-85	2.06** (0.61)	2.02** (0.59)	1.65** (0.56)	1.45** (0.53)	1.81** (0.45)	1.80** (0.45)
Aggregate GDP 1985	0.24** (0.09)	0.24** (0.09)	0.27* (0.12)	0.31* (0.12)	0.30* (0.13)	0.29* (0.13)
Terms of trade shift	14.81** (4.31)	15.22** (4.22)	15.24** (5.67)	15.88** (5.575	16.89** (4.85)	17.22** (5.01)
Gini: income Inequality	-0.55** (0.16)	-0.19 (0.24)				
Gini: land inequality			-0.09 (0.08)	0.13 (0.12)		
Ethnic harmony					0.20** (0.08)	0.32** (0.09)
Electoral competitiveness	-5.94 (3.97)	-4.57 (3.99)	-5.23 (4.03)	-4.95 (3.82)	-5.66# (3.27)	-5.74# (3.23)
Inequality* competitiveness		-0.55* (0.27)		-0.40* (0.18)		
Ethnic harmony *competitiveness						-0.23 (0.15)
N	76	76	84	84	105	105
R^2	.84	.85	.80	.81	.80	.80
S.E. of est.	10.8	10.6	12.3	12.0	11.9	11.9
Mean, D.V.	42.7	42.7	41.2	41.2	39.0	39.0

Dependent variable = International Investor Index of Creditworthiness, averaged over 1986-95. Inequality measures are circa 1985. Standard errors are calculated using White's (1980) heteroskedastic-consistent variance-covariance matrix. A #, * or ** indicates significance at .10, .05, or .01 level respectively for two-tailed tests.
Inequality*competitiveness = (deviation of Gini from sample mean)*(competitiveness).
Ethnic harmony*competitiveness = (deviation of homogeneity from 70%, in absolute value)*(competitiveness).

Table 4

Conditional coefficients and standard errors

Conditional on:		Impact on creditworthiness of 1-unit increase in....		
		Gini (income)	Gini (land)	Ethnic harmony
Checks =	1	-0.23 (0.25)	-0.02 (0.13)	0.41** (0.10)
	2	-0.41* (0.19)	-0.08 (0.09)	0.29** (0.08)
	3	-0.58** (0.17)	-0.15# (0.08)	0.18* (0.09)
	4	-0.76** (0.21)	-0.21* (0.10)	0.06 (0.13)
	5	-0.93** (0.29)	-0.27# (0.15)	-0.05 (0.18)
	6	-1.11** (0.38)	-0.33# (0.19)	-0.17 (0.23)
	7	-1.29** (0.48)	-0.39 (0.25)	-0.28 (0.29)
Electoral competitiveness =	0	-0.19 (0.24)	0.13 (0.12)	0.32** (0.09)
	1	-0.74** (0.16)	-0.27* (0.11)	0.09 (0.12)

A #, * or ** indicates significance at .10, .05, or .01 level respectively for two-tailed tests. Note the maximum value for *Checks* is 7.65 (the average for France over the period) and the minimum value is 1.

Data Appendix I
Summary Statistics

	N	Mean	Std. dev.	Min.	Max.
Creditworthiness index	106	38.8	25.7	5.9	93.4
Gini income inequality	76	41.7	9.5	25.2	63.2
Gini land inequality (N=84)	84	55.1	16.1	8.0	95.6
Ethnic homogeneity (N=105)	105	68.5	25.0	17	100
Ethnic harmony (N=105)	105	21.0	13.5	0	53
Log GDP per capita 1985	106	7.97	1.06	5.70	9.72
Per capita annual growth 1980-85	106	-0.1	3.3	-10.7	6.9
Aggregate GDP 1985 (% of US)	106	3.5	10.8	.005	100
Net barter terms of trade shift	106	0.94	0.27	0.41	1.95
Electoral competitiveness (0-1)	106	0.62	0.49	0	1
Checks (number of veto players)	106	2.89	1.74	1	7.64

Data Appendix II
Countries in sample (with creditworthiness values)

Sudan (5.9), Nicaragua (6.9), Uganda (6.9), Sierra Leone (7.2), Haiti (8.3), Liberia (8.4), Mozambique (8.8), Zaire (9.0), Ethiopia (9.2), Zambia (11.1), Tanzania (11.8), El Salvador (11.9), Angola (12.3), Iraq (12.8), Guinea (13.7), Bolivia (13.9), Honduras (14.1), Myanmar (14.2), Congo Rep. (14.7), Peru (14.9), Benin (16.2), Mali (16.5), Guatemala (16.5), Togo (16.8), Malawi (16.9), Seychelles (17.1)

Burkina Faso (17.2), Dominican Rep. (17.6), Bangladesh (18.9), Jamaica (19.3), Senegal (19.3), Nigeria (19.7), Syria (20.4), Cote D'Ivoire (20.8), Swaziland (21.5), Ecuador (21.9), Costa Rica (22.1), Panama (23.1), Nepal (23.5), Iran (24.3), Sri Lanka (24.9), Philippines (26.3), Argentina (26.3), Egypt (26.4), Zimbabwe (26.6), Ghana (27.5), Cameroon (27.5), Kenya (27.7), Paraguay (28.2), Jordan (28.2), Morocco (29.1), Pakistan (29.4), Brazil (29.6), Mauritania (30.1)

Gabon (30.3), Uruguay (31.4), Papua New Guinea (32.6), Trinidad & Tobago (33.6), Venezuela (36.1), Algeria (36.1), Barbados (36.3), Guinea-Bissau (36.4), South Africa (37.0), México (37.2), Israel (37.4), Tunisia (38.7), Colombia (39.0), Chile (39.4), Turkey (41.7), Mauritius (43.4), Botswana (43.8), India (44.7), Cyprus (45.9), Greece (48.0), Indonesia (48.5), Oman (51.1), Iceland (54.2), Kuwait (54.2), Saudi Arabia (59.2), Thailand (59.5), Malta (60.1)

Malaysia (61.4), Portugal (61.5), New Zealand (65.2), Korea (66.4), Ireland (67.1), Australia (70.8), Spain (74.2), Denmark (74.3), Finland (75.2), Italy (76.5), Taiwan (77.1), Singapore (78.1), Sweden (78.1), Belgium (78.5), Norway (79.6), Canada (84.0), Austria (84.4), Luxembourg (84.5), UK (86.4), France (86.5), Netherlands (87.8), USA (90.4), Germany (91.9), Switzerland (93.3), Japan (93.4)

Data Appendix III
Coding of Political Institutions Variables

Executive index of electoral competitiveness (EIEC)

No executive:	1
Unelected executive:	2
Elected, 1 candidate:	3
1 party, multiple candidates:	4
multiple parties are legal:	5
multiple parties with multiple candidates, but the winner received more than 75% of the votes:	6
winner received less than 75% of votes:	7

- Executives who are:
  1) Elected directly by population, or
  2) Elected by an electoral college that is elected by the people **and** has the sole purpose of electing the executive, are scored on the above scale.

- Executives elected by bodies other than these are given the same score that the electing body would get. Even if the electing body is not the actual "legislature" (such as an appointed electoral college), the competitiveness of that body is used to score the executive.

- This means that competitively elected prime ministers get 6 or 7. The chief executives of Communist nations (the chairman of the Communist Party) is given a 3, because they are elected by the Party Congress, electing bodies which they do not appoint. Executives elected by small, appointed juntas or by appointed electoral colleges get 2.

- Rival chief executives in one country, particularly in the setting of armed conflicts, are counted as No executives, and thus score a 1.

- Referenda and votes by "popular acclamation" on unelected executives are scored as 3.

- If executives unilaterally extend their terms of office, they get a 2 starting in the year they should have held elections. Any executive elected for life, even by the people or an elected assembly, gets a 2. This elected-for-life rule is slightly different from that followed for legislatures that unilaterally extend their rule.

Checks

Checks equals one if the above index (EIEC), or the legislative index of electoral competitiveness (LIEC, also from Beck et al., 2000), is less than 5: countries where legislatures are not competitively elected are considered countries where only the executive wields a check. In presidential systems: (1) if EIEC is greater than 6, *Checks* is

incremented by one to distinguish countries with competitively elected presidents and no other checks (see (2) and (3)) from countries with non-competitively elected presidents; (2) if the opposition controls the legislature, *Checks* is incremented by one; (3) *Checks* is incremented by one for each chamber of the legislature UNLESS the president's party has a majority in the lower house AND a closed list system is in effect (implying stronger presidential control of his/her party, and therefore of the legislature); (4) if the first government party has a position on economic issues closer to the largest opposition party than to the party of the executive, *Checks* is incremented by one. In parliamentary systems: (1) if LIEC is greater than 6, *Checks* is incremented by one, to establish equivalence with presidential checks counting; (2) if the opposition controls the legislature, *Checks* is incremented by one; (3) for every party in the government coalition, up to the largest three parties, *Checks* is incremented by one; (4) *Checks* is incremented by the number of "other" government parties if the total number of government seats in the legislature without taking those parties into account is less than 50 percent; (5) for every party in the government coalition that has a position on economic issues closer to the largest opposition party than to the party of the executive, *Checks* is incremented by one.

References

Acemoglu, D., Robinson J. (2001) A Theory of Political Transitions. *American Economic Review* 91, 938-963

Alesina, A., Drazen, A. (1991) Why are Stabilizations Delayed? *American Economic Review* 81(5), 1170-1188

Alesina, A., Gatti, R. (1995) Independent Central Banks: Low Inflation at no Cost? *American Economic Review Papers and Proceedings* 85(2), 196-200

Beck, T., Clarke, G., Groff, A., Keefer, P., Walsh, P. (2001). New Tools in Comparative Political Economy: The Database of Political Institutions. *World Bank Economic Review* 15(1), 165-176

Berg, A., Sachs, J. (1988). The Debt Crisis: Structural Explanations of Country Performance." *Journal of Development Economics* 29, 271-306

Deininger, K., Squire, L. (1996). Measuring Income Inequality: A New Data Set. *World Bank Economic Review* 10(3), 565-91

Easterly, W., Levine, R. (1997). Africa's Growth Tragedy: Policies and Ethnic Divisions. *Quarterly Journal of Economics* 112(4), 1203-50

Esteban, J-M., Ray, D. (1994). On the Measurement of Polarization. *Econometrica,* 62(4), 819-851

Feder, G., Ross, K. (1982). Risk Assessments and Risk Premiums in the Eurodollar Market. *Journal of Finance* 37(3), 679-91

GAO (1994) *Credit Reform: U.S. Needs Better Method for Estimating Cost of Foreign Loans and Guarantees.* Washington, DC: U.S. General Accounting Office

Gould, W., Rogers, W. H. (1994) Quantile Regression as an Alternative to Robust Regression. *Proceedings of the Statistical Computing Section.* Alexandria, VA: American Statistical Association

Greif, A. (1989) Reputation and Coalitions in Medieval Trade: Evidence on the Maghribi Traders. *Journal of Economic History* 49(4), 857-82

Haggard, S., Kaufman, R. eds. (1992) *The Politics of Economic Adjustment: International Constraints, Distributive Conflicts and the State.* Princeton: Princeton University Press

Horowitz, D. L. (1985) *Ethnic Groups in Conflict.* Berkeley, CA: University of California Press

Jazairy, I., Alamgir, M., Panuccio, T. (1992) *State of World Rural Poverty: An Inquiry into its Causes and Consequences*. International Fund for Agricultural Development.

Keefer, P. (2002) Clientelism and Credibility. Presented at the meetings of the International Society for New Institutional Economics, Boston, September 2002

____, Knack, S. (2002) Polarization, Property Rights and the Links between Inequality and Growth. *Public Choice*, 111, 127-154

____, Stasavage, D. (2000) Bureaucratic Delegation and Political Institutions: When are Independent Central Banks Irrelevant? *World Bank Policy Research Working Paper* 2356.

Knack, S., Keefer, P. (1997) Does Inequality Harm Growth Only in Democracies? A Replication and Extension. *American Journal of Political Science* 41(1), 323-32

Landa, J. (1981) A Theory of the Ethnically Homogeneous Middleman Group: An Institutional Alternative to Contract Law. *Journal of Legal Studies* 10, 349-362

McGuire, M.C., Olson, M. Jr. (1996) The Economics of Autocracy and Majority Rule: The Invisible Hand and the Use of Force. *Journal of Economic Literature* 34(1), 72-96

Meltzer, A.H., Richard, S. F. (1981) A Rational Theory of the Size of Government. *Journal of Political Economy* 89, 914-27

Muller, E. N., Seligson, M. (1987) Inequality and Insurgency. *American Political Science Review* 81(2), 425-451

North, D., Weingast, B. (1992) Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England. *Journal of Economic History* 49(4), 803-32

Olson, Jr., M. (1982) *The Rise and Decline of Nations: Economic Growth, Stagflation and Social Rigidities*. New Haven: Yale University Press

Olson, Jr., M. (1965) *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge, Mass.: Harvard University Press.

Persson, T., Tabellini, G. (1994) Is Inequality Harmful for Growth? *American Economic Review* 84, 600-21

Quinn, D. R., Woolley, J. T. (2001) Democracy and National Economic Performance: The Preference for Stability. *American Journal of Political Science* 45(3), 634-57

Rahnama-Moghadam, M., Samavati, H. (1991) Predicting Debt Rescheduling by Less-Developed Countries: A Probit Model Approach. *Quarterly Review of Economics*

and Business 31(1), 3-14

Rodrik, D. (1999) Where did all the growth go? External shocks, social conflict, and growth collapses. *Journal of Economic Growth* 4(4), 385-412

Sullivan, M. J. (1991) *Measuring Global Values*. New York: Greenwood

Svensson, J. (1998) Investment, Property Rights and Political Instability: Theory and Evidence. *European Economic Review* 42(7), 1317-42

Taylor, C., Jodice, D. (1983) *World Handbook of Political and Social Indicators, 3rd ed.* New Haven: Yale University Press

Veiga, F. J. (2000) Delays of Inflation Stabilizations. *Economics and Politics* 12(3), 275–95

White, H. L. (1980) A Heteroskedasticity-consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica* 48, 817-38

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS2895	Telecommunications Reform in Côte d'Ivoire	Jean-Jacques Laffont Tchétché N'Guessan	September 2002	P. Sintim-Aboagye 38526
WPS2896	The Wage Labor Market and Inequality in Vietnam in the 1990s	John Luke Gallup	September 2002	E. Khine 37471
WPS2897	Gender Dimensions of Child Labor and Street Children in Brazil	Emily Gustafsson-Wright Hnin Hnin Pyne	October 2002	M. Correia 39394
WPS2898	Relative Returns to Policy Reform: Evidence from Controlled Cross-Country Regressions	Alexandre Samy de Castro Ian Goldin Luiz A. Pereira da Silva	October 2002	R. Yazigi 37176
WPS2899	The Political Economy of Fiscal Policy and Economic Management in Oil-Exporting Countries	Benn Eifert Alan Gelb Nils Borje Tallroth	October 2002	J. Schwartz 32250
WPS2900	Economic Structure, Productivity, and Infrastructure Quality in Southern Mexico	Uwe Deichmann Marianne Fay Jun Koo Somik V. Lall	October 2002	Y. D'Souza 31449
WPS2901	Decentralized Creditor-Led Corporate Restructuring: Cross-Country Experience	Marinela E. Dado Daniela Klingebiel	October 2002	R. Vo 33722
WPS2902	Aid, Policy, and Growth in Post-Conflict Societies	Paul Collier Anke Hoeffler	October 2002	A. Kitson-Walters 33712
WPS2903	Financial Globalization: Unequal Blessings	Augusto de la Torre Eduardo Levy Yeyati Sergio L. Schmukler	October 2002	P. Soto 37892
WPS2904	Law and Finance: Why Does Legal Origin Matter?	Thorsten Beck Aslı Demirgüç-Kunt Ross Levine	October 2002	K. Labrie 31001
WPS2905	Financing Patterns Around the World: The Role of Institutions	Thorsten Beck Aslı Demirgüç-Kunt Vojislav Maksimovic	October 2002	K. Labrie 31001
WPS2906	Macroeconomic Effects of Private Sector Participation in Latin America's Infrastructure	Lourdes Trujillo Noelia Martín Antonio Estache Javier Campos	October 2002	G. Chenet-Smith 36370
WPS2907	The Case for International Coordination of Electricity Regulation: Evidence from the Measurement of Efficiency in South America	Antonio Estache Martin A. Rossi Christian A. Ruzzier	October 2002	G. Chenet-Smith 36370
WPS2908	The Africa Growth and Opportunity Act and its Rules of Origin: Generosity Undermined?	Aaditya Mattoo Devesh Roy Arvind Subramanian	October 2002	P. Flewitt 32724
WPS2909	An Assessment of Telecommunications Reform in Developing Countries	Carsten Fink Aaditya Mattoo Randeep Rathindran	October 2002	P. Flewitt 32724

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS2910	Boondoggles and Expropriation: Rent-Seeking and Policy Distortion when Property Rights are Insecure	Philip Keefer Stephen Knack	October 2002	P. Sintim-Aboagye 38526
WPS2911	Micro-Level Estimation of Welfare	Chris Elbers Jean O. Lanjouw Peter Lanjouw	October 2002	P. Sader 33902
WPS2912	Short-Run Pain, Long-Run Gain: The Effects of Financial Liberalization	Graciela Laura Kaminsky Sergio L. Schmukler	October 2002	E. Khine 37471
WPS2913	Financial Development and Dynamic Investment Behavior: Evidence from Panel Vector Autoregression	Inessa Love Lea Zicchino	October 2002	K. Labrie 31001
WPS2914	The Impact of Cash Budgets on Poverty Reduction in Zambia: A Case Study of the Conflict between Well-Intentioned Macroeconomic Policy and Service Delivery to the Poor	Hinh T. Dinh Abebe Adugna Bernard Myers	October 2002	D. Sidibe 35074
WPS2915	Federal Politics and Budget Deficits: Evidence from the States of India	Stuti Khemani	October 2002	H. Sladovich 37698
WPS2916	Ex-ante Evaluation of Conditional Cash Transfer Programs: The Case of Bolsa Escola	François Bourguignon Francisco H. G. Ferreira Phillippe G. Leite	October 2002	P. Sader 33902
WPS2917	Economic Development, Competition Policy, and the World Trade Organization	Bernard Hoekman Petros C. Mavroidis	October 2002	R. Martin 39065
WPS2918	Reducing Agricultural Tariffs versus Domestic Support: What's More Important for Developing Countries?	Bernard Hoekman Francis Ng Marcelo Olarreaga	October 2002	R. Martin 39065
WPS2919	Financial Regulatory Harmonization and the Globalization of Finance	Cally Jordan Giovanni Majnoni	October 2002	H. Issa 30154